

# Exhibit A

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

TRUEPOSITION, INC.,	)	
	)	
PLAINTIFF/	)	
COUNTERCLAIM- DEFENDANT,	)	
	)	
	)	
v.	)	CA NO. 05-00747-SLR
	)	
ANDREW CORPORATION,	)	
	)	
DEFENDANT/	)	
COUNTERCLAIM-PLAINTIFF.	)	

**EXPERT REPORT OF DR. DAVID GOODMAN  
ON THE INVALIDITY OF U.S. PATENT NO. 5,327,144**

**D. INFORMATION RELIED ON**

Attached as Exhibit B is a list of the materials that I reviewed in connection with my preparation of this report.

**III. OPINIONS AND BASES FOR THOSE OPINIONS**

**A. LEGAL STANDARDS**

In conducting my analysis and forming my opinions I have received and relied upon information provided by counsel regarding the applicable legal standards on patent invalidity.

I understand that issued U.S. Patents are presumed valid and that the standard to prove invalidity is clear and convincing evidence.

I understand that for an independent patent claim to be anticipated by the prior art, the prior art reference must disclose each and every limitation of the claim either expressly or inherently. I also understand for a dependent claim to be anticipated by the prior art, the prior art reference must disclose each and every limitation of both the dependent claim and any claim(s) from which it depends.

I understand that for a patent claim to be invalid for obviousness the differences between the claimed invention as a whole and the prior art would have been obvious to a person of ordinary skill in the art at the time of the invention. I understand that before an obviousness determination can be made, I must consider the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the claimed invention and the prior art.

I understand that claims are construed according to their plain and ordinary meaning to one of ordinary skill in the art. I understand that the same claim construction must be used for both an infringement analysis and an invalidity analysis; I understand that claims cannot be construed one way for an infringement analysis and a different way for an invalidity analysis.

I also understand that the Court has not yet construed claim terms in this case, but that the parties have exchanged various preliminary claim interpretations. Regardless of which

constructions are adopted it is my opinion that the Kono application will anticipate the '144 patent if its claims are read broadly enough to cover Andrew's Geometrix products.

#### **B. ORDINARY SKILL IN THE ART**

A person of ordinary skill in the art of the '144 patent would have had a masters degree in electrical and computer engineering or computer science, or the equivalent skills and knowledge, and/or at least two years' experience at a cellular operating company, or a company that designs/produces cellular systems or services, including value added systems or services such as location determination.

#### **C. THE '144 PATENT**

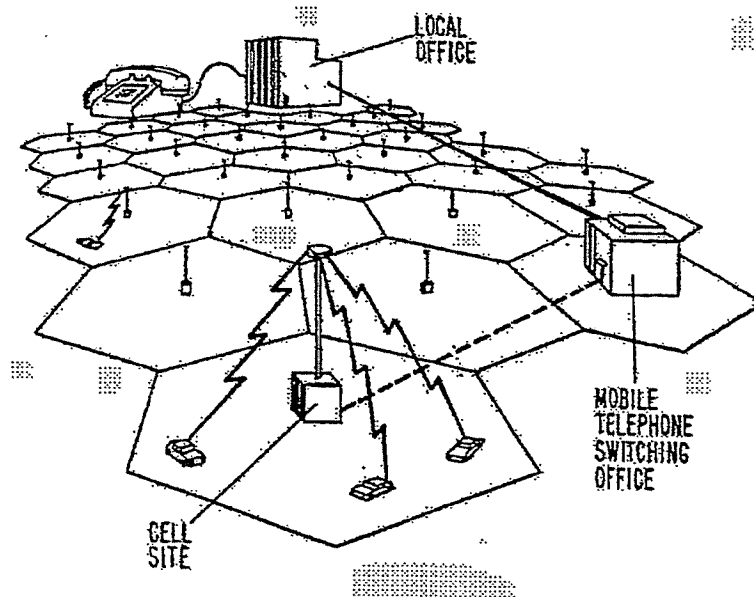
The '144 patent is titled "Cellular Telephone Location System". Using the system disclosed in the patent, an AMPS cellular telephone network estimates the geographical coordinates of cellular telephones served by the network.

The technique at the heart of the purported invention is referred to as Time Difference of Arrival (TDOA) location determination. TDOA location determination was a well known technique at the time of the invention.

To use this technique in a cellular network, the patent dictates that at least three cell sites must receive the same radio signal from a cellular telephone. Each one converts the radio signal to a baseband signal, digitizes the base band signal and sends the digitized baseband signal, along with a time stamp to a central site. As shown in Figure 7 of the '144 patent, the central site uses correlation techniques to estimate the differences among times of arrival ("TDOA data") at all pairs of reporting cell sites. It uses the TDOA data to estimate the geographical coordinates of the cellphone by comparing the measured delays with a grid of reference delays stored at the central site. Each reference delay is associated with a unique geographical reference location. The central site uses a least squares metric to determine the best reference location. After determining the best reference location, the central site again uses a least squares technique to further refine the location estimate.

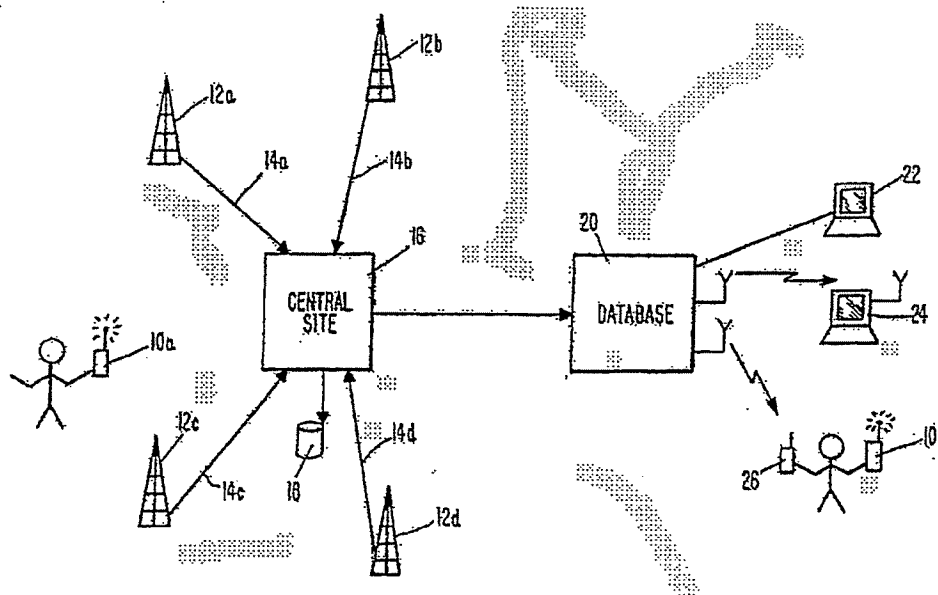
All of the claims of the '144 patent pertain to cellular telephone systems. Figures 1A and 1C of the '144 patent display some of the properties of a generic cellular system. Figure 1C

shows “the main components and arrangement of cellular telephone system.” ‘144 Pat., Col. 1, ll. 51-52.



**Fig. 1C, '144 Patent**

Figure 2 of the '144 patent shows “a schematic diagram of a cellular telephone location system in accordance with the present invention.” ‘144 Patent, Col. 7, ll. 60-62.



**Fig. 2, '144 Patent**

Claim Language	Present In Kono?	Kono Disclosure
providing baseband signals derived from the cellular telephone signals;		
a timing signal receiver for receiving a timing signal common to all cell sites;	Yes	"...the time of the standard clock 54 is corrected by the switching station 1." Page 5, ¶ 3, l. 16.
and a sampling subsystem operatively coupled to said timing signal receiver and said baseband convertor for sampling said baseband signal at a prescribed sampling frequency and formatting the sample signal into frames of digital data, each frame comprising a prescribed number of data bits and time stamp bits, said time stamp bits representing the time at which said cellular telephone signals were received; and	Yes	Kono teaches software and processors in control circuit 55 that determine and format time of arrival information. Time stamp bits: "The standard clock 54 is an ultra-high precision clock, and the time measurement circuit 53 measures the absolute time of the above-mentioned trigger, and reports it to the switching station 1 from the control circuit 55 via the control device 11." Page 5, ¶ 3, ll. 13-15. Data bits: "It should be noted that the junction points 22a – 22n are used for voice communication signals, and the junction points 23a – 23n are used for data or control signals." Page 5, ¶ 1, ll. 15-17.
(b) a central site system operatively coupled to said cell site systems, comprising:	Yes	Switching station 1 and position location calculating device 2.
means for processing said frames of data from said cell site systems	Yes	"The base station 1 forwards these data to the position location calculating device 2, and the position of the mobile equipment 5 is calculated." Page 4, ¶ 2, ll. 23-25.
to generate a table identifying individual cellular telephone signals and the differences in times of arrival of said cellular telephone signals among said cell site systems;	Yes	"reports to the switching station 1 via the control devices 11a – 11n data such as the difference in arrival time of position locating signals with respect to the various base stations 3a – 3n." Page 4, ¶ 2, ll. 21-23.
and means for determining, on the basis of said times of arrival differences, the locations of the cellular telephones responsible for said cellular telephone signals.	Yes	"The base station 1 forwards these data to the position location calculating device 2, and the position of the mobile equipment 5 is calculated." Page 4, ¶ 2, ll. 23-25.

Claim Language	Present In Kono?	Kono Disclosure
2. A cellular telephone location system as recited in claim 1,	Yes	See the above claim chart for claim 1.
wherein said timing signal receiver comprises a global positioning system (GPS) receiver.	Yes	Since at least as early as 1993, some cellular networks have had GPS receivers at every base station. The location systems disclosed in the Kono reference and the '144 patent work in conjunction with cellular networks. When those cellular networks have GPS receivers, they can be used by the location system.

Claim Language	Present In Kono?	Kono Disclosure
22. A ground-based cellular telephone system serving a plurality of subscribers possessing mobile cellular telephones, comprising:	Yes	"FIG. 1 shows a configuration of a moving body position locating apparatus" Page 3 ¶ 6, ll. 12.
(a) at least three cell sites;	Yes	Base stations 3a-3n.
equipped to receive signals sent by multiple mobile cellular telephones	Yes	Control channel transceivers 12a-12n.
each initiating periodic signal transmissions	Yes	"a moving body transmits position locating signals using shared channels" Page 3 ¶ 5, l. 1.
over one of a prescribed set of reverse control channels	Yes	"12a - 12n are control channel transceivers that transmit and receive signals for the control channels allotted for each of the base stations 3a - 3n." Page 2, ¶ 2, ll. 5-6.
(b) locating means for automatically determining the locations of said cellular telephones by receiving and processing signals emitted during said periodic reverse control channel transmissions; and	Yes	Kono teaches software and processors in control unit 55 that determine and format time of arrival information. "The standard clock 54 is an ultra-high precision clock, and the time measurement circuit 53 measures the absolute time of the above-mentioned trigger, and reports it to the switching station 1 from the control circuit 55 via the control device 11." Page 5, ¶ 3, ll. 13-15. "The base station 1 forwards these data to the position location calculating device 2, and the position of the mobile equipment 5 is calculated." Page 4, ¶ 2, ll. 23-25.



(c) database means for storing location data identifying the cellular telephones and their respective locations, and for providing access to said database to subscribers at remote locations.	Yes	Since their inception in the early 1990s, GSM networks have had Home Location Registers ("HLRs") and Visitor Location Registers ("VLRs"). Because Andrew's products do not have a database, if TruePosition argues for an interpretation of "database means" that is broad enough to encompass Andrew's products, this element is anticipated by the HLR and VLR inherent in the cellular systems taught by the Kono application.
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Claim Language	Present In Kono?	Kono Disclosure
31. A method for determining the location(s) of one or more cellular telephones	Yes	"FIG. 1 shows a configuration of a moving body position locating apparatus" Page 3 ¶ 6, ll. 12.
each initiating periodic signal transmissions over one of a prescribed set of reverse control channels, comprising the steps of:	Yes	"a moving body transmits position locating signals using shared channels" Page 3 ¶ 5, l. 1.
(a) receiving said reverse control channel signals at least three geographically separated cell sites;	Yes	"12a - 12n are control channel transceivers that transmit and receive signals for the control channels allotted for each of the base stations 3a - 3n." Page 2, ¶ 2, ll. 5-6.
(b) processing said signals at each cell site to produce frames of data, each frame comprising a prescribed number of data bits and time stamp bits, said time stamp bits representing the time at which said frames were produced at each cell site;	Yes	Kono teaches software and processors in hardware unit 55 that determine and format time of arrival information. Time stamp bits: "The standard clock 54 is an ultra-high precision clock, and the time measurement circuit 53 measures the absolute time of the above-mentioned trigger, and reports it to the switching station 1 from the control circuit 55 via the control device 11." Page 5, ¶ 3, ll. 13-15. Data bits: "It should be noted that the junction points 22a - 22n are used for voice communication signals, and the junction points 23a - 23n are used for data or control signals." Page 5, ¶ 1, ll. 15-17.



# Exhibit B

Page 1

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

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TRUEPOSITION, INC.,

Plaintiff/Counterclaim-Defendant

vs.

CA No. 05-00747-SLR

ANDREW CORPORATION,

Defendant/Counterclaim-Plaintiff

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VIDEOTAPED DEPOSITION OF DR. DAVID GOODMAN

New York, New York

Monday, January 15, 2007

Reported by:  
Adrienne M. Mignano  
JOB NO. 190791

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# Exhibit C

Oded Gottesman Report:

0. EXPERT REPORT OF ODED GOTTESMAN, Ph.D.

**EXPERT REPORT OF ODED GOTTESMAN, Ph.D.**

My name is Oded Gottesman, and I was asked to write this report by TruePosition, Inc. ("TruePosition"). I was specifically asked to consider whether Andrew Corporation ("Andrew") has infringed U.S. Patent 5,327,144 (the '144 Patent). I understand that TruePosition has sued Andrew for infringement of U.S. Patent 5,327,144 (the '144 Patent). I have been retained by TruePosition because of my expertise in the areas of telecommunications, computer programming, signal processing, speech coding, and transmission over networks, including radio communications in cellular networks.

This report considers the '144 Patent, and my opinion that Andrew infringes the 144 Patent because the 144 Patent claims encompass configurations of Andrew's Mobile Location System product known as the "Geometrix® Wireless Location System."

**I. Summary of My Opinions**

Based upon my 19 years of experience in the signal processing and telecommunications industry, I believe that Andrew has infringed Claims 1, 2, 22, 31, and 32 (the "Asserted Claims") of the '144 Patent by using and offering to sell certain configurations of its Geometrix® Wireless Location System, and by supplying from the United States the components of the Geometrix® Wireless Location System.

More specifically, in December 2004, Andrew infringed Claims 1 and 2 of the 144 Patent by offering for sale within the United States a configuration of the Geometrix® Wireless Location System to Saudi Telecom Company ("STC"), a cellular telephone network operator in Saudi Arabia.

In about August/September 2005, Andrew also infringed Claim 31 of the 144 Patent by using within the United States a configuration of the Geometrix® Wireless Location System at a demonstration at its Ashburn, Virginia, facility.

Between October, 2005 and February, 2006, Andrew again infringed Claims 1 and 2 of the 144 Patent by offering for sale configurations of the Geometrix® Wireless Location System to STC.

After October, 2005, Andrew also repeatedly infringed Claims 1, 2, 22, 31 and 32 of the 144 Patent by supplying from the United States to Saudi Arabia components of a system comprising a combination of Andrew's Geometrix® Wireless Location System and STC's cellular telephone system, and by supplying components of a method performed during the operation of that combination system.

After October, 2005, Andrew also repeatedly infringed Claims 1, 2, 22, 31 and 32 of the 144 Patent by supplying from the United States to Saudi Arabia components of a system comprising a combination of Andrew's Geometrix® Wireless Location System, STC's cellular telephone system and a Location Based Services database owned or operated by STC, and by supplying components of a method performed during operation of that combination system.

## Oded Gottesman Report:

## 0. Location of Cellular Telephones and The '144 Patent

Patent to determine a cell phone user's position, for example, to track the position of crime suspects who carry cell phones.

The cellular telephone location system taught in the 144 Patent is a "network overlay system." That is, it is overlaid on the cellular telephone network and determines the cell phone's position from signals that the phone sends to the cellular network as part of the phone's normal operation. Other cell phone location systems require that the phone be specially configured to include a GPS receiver that determines the phone's position. Cell phone companies and government agencies, however, often prefer network overlay systems for some applications because they require no modification of the phone. One reason for that preference is that crime suspects or terrorists may disable the GPS feature of their phones to avoid being tracked.

Rather than requiring modification of cell phones to include a GPS receiver, 144 Patent inventors conceived the idea of locating cell phones by performing a "Time Difference of Arrival" (TDOA) technique on the cellular telephone's reverse control channel, such as an SDCCH, emitted by the cell phone during normal operation.

The patent lists some potential advantages of using a control channel, such as an SDCCH. One of the advantages is that the cell phone user can be located even when he or she is not making a call (i.e., transmitting on the voice channel). In other words, the control channel becomes active automatically once the phone becomes active (cellular phones typically prompt "Searching for Network" and/or "Registering with Network"), and does not require any further activation or initiation like placing a voice call requires.

The 144 Patent also explains the TDOA technique used to estimate the location of a cellular phone. The 144 Patent teaches that cell site processing systems are installed at multiple cell sites. Control channel signals, such as SDCCH signals, from a cellular phone are received at three or more cell sites having the installed cell site systems. The cell site systems measure Time of Arrival ("TOA") of the signals from the cellular phone at each of the cell sites and send the TOA's back to a central site system computer. The central site system computer then calculates the TDOA of the signals received at pairs of cell sites and estimates the location of the cellular phone on that basis.

Andrew's current internal technical documents concerning Geometrix actually serve as a good illustration of how the TDOA technique that was earlier disclosed in the 144 Patent works:

The U-TDOA<sup>9</sup> technique works by measuring the exact time of arrival of a radio signal at three or more separate cell sites. Because radio waves travel at a fixed and known rate (the speed of light), by calculating the difference in arrival time at pairs of cell sites, it is possible to calculate

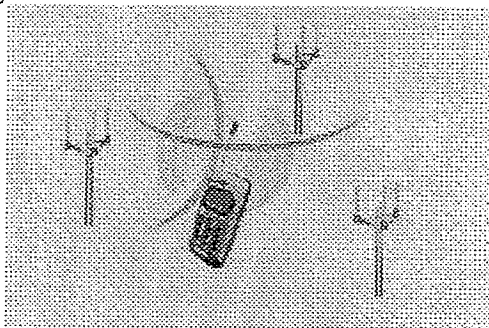
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<sup>9</sup> "U-TDOA," or Uplink Time Difference of Arrival, is another name for TDOA. *See, e.g.*, 09/27/06 Deposition Transcript of Terry Garner, p. 12, l. 8 – p. 13, l. 15.

## Oded Gottesman Report:

## 0. Level of Ordinary Skill in the Art Defined by the 144 Patent

hyperbolas on which the transmitting device is located. As seen in the figure, measurements at two pairs of cell sites (for example, sites 1 & 2, and sites 1 & 3) create two intersecting hyperbolas indicating the location of the transmitting device.<sup>10</sup>



**Figure 2** Locating mobile phone using three TDOA measurements

The cellular telephone location system taught in the '144 Patent is a seminal and definitive definition of UTDOA of signals received on the reverse control channel.

In one embodiment, the 144 Patent also teaches an example of a subsequent generative process that is performed whereby the time difference of arrivals computed for sensor units are used to compute and estimate of a location of a cellular telephone using an iterative process. In this iterative process, location estimation improves as the iteration process continues. In this embodiment, the patent teaches that, for example, least squares difference (LSD) can be the criterion to be minimized, and that one can perform linearized-weighted-least-squares iteration to resolve the actual phone's location at the desired resolution. Such a technique is typically aimed to achieve the Maximum Likelihood (ML) estimate which maximizes the probability that a particular position estimate is the true position location [45]-[51]. In the embodiment of the 144 Patent referenced above, this probability maximization is realized by adding, in each step of the iteration, an additional correction factor to the estimated location information. This embodiment teaches that the approximation metric used in the process is based on UTDOA stored in a table and a database containing information that relates the time measurements and geographic measurements, such as the coordinates of the cell site systems. The embodiment further teaches that these time measurements, along with the database stored information such as the cell site system coordinates, can be processed in order to compute the cellular telephone's geographic location.

## Level of Ordinary Skill in the Art Defined by the 144 Patent

For purposes of my opinions in this report, I believe that a person of ordinary skill in the art of radio signal communications and signal processing from 1993 to the present

<sup>10</sup> "Responses to STC Questions," Andrew Beck, AND\_EF0002001.

## Oded Gottesman Report:

## 0. Analysis of Geometrix® System and the '144 Patent

would be someone with a bachelor's or master's degree in electrical engineering, physics or a similar technical discipline, or someone with the equivalent of such a bachelor's or masters degree.

## Analysis of Geometrix® System and the '144 Patent

Each of the following subsections describes my opinions as to whether elements of claims of the '144 Patent are found either literally or equivalently in the following six Geometrix configurations offered, used and/or supplied or partially supplied by Andrew Corporation.

- **Andrew's December 2004 Offer for Sale to STC**

In December, 2004 Andrew offered for sale to STC cellular telephone location system.<sup>11</sup> For this Geometrix configuration I was asked to consider Claims 1 and 2. It is my opinion that Andrew's offer for sale infringes claims 1 and 2 of the '144 Patent for the reasons in the analysis described in Section E.2.

- **Andrew's August/September, 2005 Demonstration in Ashburn**

In about August or early September, 2005, Andrew demonstrated a geolocation system that located a mobile phone transmitting on the Standalone Dedicated Control Channel using TDOA. For this Geometrix system I have been asked to consider Claim 31. It is my opinion that Andrew's use of Geometrix during the demonstration infringes Claims 31 in the '144 Patent for the reasons of the analysis described in Section E.3.

- **Andrew's Post-Complaint Offers for Sale to STC**

After October 25, 2005, Andrew made a series of post-complaint offers for sale to STC for a configuration of its Geometrix system. These offers culminated in Mr. Terry Garner providing an executed contract to STC, in person, for validation and acceptance by STC.<sup>12</sup> These offers differed from the December, 2004 offer in that Andrew substituted Version 3 WLS's for Version 2 WLS's in the system it proposed to STC.<sup>13</sup> For this Geometrix system configuration I have been asked to consider Claims 1 and 2. It is my opinion that Andrew's offers for sale infringe Claims 1 and 2 of the '144 Patent for the reasons in the analysis described in Section E.4.

- **Andrew's Supply of Equipment/Software (Andrew/STC System)**

Andrew supplied from the United States to Saudi Arabia components of a system that comprises a combination of Andrew's Geometrix system and STC's cellular network. For this Geometrix system I have been asked to consider Claims 1, 2, 22, 31 and 32. It is my opinion that Andrew's supply infringes Claims 1, 2, 22, 31 and 32 of the '144 Patent for the reasons in the analysis described in Section E.5.

- **Andrew's Supply of Equipment/Software (Andrew/STC/Ericsson System)**

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<sup>11</sup> See PX-187 – PX-223; 10/16/06 Deposition Transcript of Andrew Corporation by Joe Kennedy, p. 32, l. 4 – p. 34, l. 22.

<sup>12</sup> See, e.g., AND\_EF0121694.

<sup>13</sup> See, e.g., PX-56, PX-60.

# Exhibit D



**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

TruePosition, Inc.	)	
	)	
Plaintiff/	)	
Counterclaim-Defendant,	)	C.A. No. 05-747 (SLR)
	)	
v.	)	
	)	
Andrew Corporation,	)	
	)	
Defendant/	)	
Counterclaim-Plaintiff.	)	
	)	

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**EXPERT REPORT OF BRIAN G. AGEE, PH.D., P.E.  
RESPONSE TO DR. DAVID GOODMAN'S REPORT ON THE VALIDITY  
OF U.S. PATENT NO. 5,327,144**

**Kono fails to disclose or teach location by receiving and processing signals emitted during reverse control channel transmissions**

As explained in the passage in Subsection 3.3.1.1 entitled "Kono fails to teach reception and provision of *reverse control channel* cellular telephone baseband signals," Kono does *not* process "periodic reverse control channel transmissions" in the common channel receiver in any event, but instead processes the *position location signals*, which are (as explained in that passage) *not* control channel transmissions under either Andrew's or TruePosition's Claim Constructions.

Dr. Goodman again provides contradictory information in his report, by attempting to imply that

"the elements of the Kono application that perform this function [receiving and processing signals emitter during said periodic reverse control channel transmissions]

are

"the shared [common] channel receivers in the base stations"

in the fourth paragraph on page 14 of his report, and then, in his applicable summary table on page 17 of his report, he states (highlighting mine):

Claim Language	Present in Kono	Kono Disclosure
...		
equipped to receive signals sent by multiple mobile cellular telephones	Yes	Control channel transceivers <i>12a-12n</i>
each initiating periodic signal transmission	Yes	"a moving body transmits position locating signals using shared channels,"
over one of a prescribed set of reverse control channels	Yes	" <i>12a-12n</i> are control channel transceivers that transmit and receive signals for the control channels allotted for each of the base stations <i>3a-3n</i> ."
...		

That is, Dr. Goodman appears to acknowledge that the "reverse control channels" are the channels connected to the control channel transceivers *12a-12n* in Kono, but then appears to imply that the signals *sent* over these control channels, and received and processed by the *control channel transceivers 12a-12n*, are the *position locating signals*. However, on page 14 of his report, he also acknowledges that these signals are both (a) sent over the *shared* [common] channels and (b) processed by the shared [common] channel receiver at the base transceiver station.

Again, given his contradictory statements here, I can not ascertain his true opinion is on this matter. However, he advances no argument anywhere in his report explicitly stating an opinion that the position location signals are control signals, or that the shared [common] channel is a control channel.

**Kono fails to disclose or teach any database means for storing location data**

Kono fails to disclose or teach *any* database means for storing location data, much less the specific database means defined by both the Andrew Claim Constructions and the TruePosition Claim Constructions.

In regards "database means for storing location data ...", Andrew's Claim Constructions direct me to consider only whether Kono teaches (highlighting mine):

"storing location data identifying the cellular telephones and their respective locations, and for providing access to the database to subscribers at remote locations"

using

"a database or local disk storage device containing the telephone number corresponding to each cellular telephone and a terminal coupled to the database via (1) modem and telephone line, or (2) radio communication providing access to the database and user."

However, as I explain in the passage in Subsection 3.3.1.1 entitled "Kono fails to disclose or teach means for processing said data frames from cell site systems, to generate a table," Kono fails to teach either a table of individual cellular telephone sig-

nals, or (as can be ascertained from my listing of exchange office actions) a table of mobile locations. Moreover, as also explained in this passage, there is no inherent need to store the mobile telephone number or position location at the exchange office in order to perform position location using the method taught in Kono. Kono therefore fails to anticipate this element of Claim 22 under Andrew's Claim Constructions.

Similarly, TruePosition's Claim Constructions direct me to consider only Kono's teaching of blocks 20 and 22, or blocks 22 and 24, or blocks 20 and 26, in Figure 2 of the 144 Patent, and text accompanying those Figure blocks. Again, as explained in the passage in Subsection 3.3.1.1 entitled "Kono fails to disclose or teach means for processing said data frames from cell site systems, to generate a table," no database of any type is expressly or inherently taught by Kono. Moreover, even if the exchange office had a database, which it does not, the *only* actions/operations taken by the exchange office in Kono are between the exchange office and the base transceiver stations or mobile, no operations are described between the exchange office and nonmobile network users, and no operations are necessary for performance of a position location function. Kono therefore fails to anticipate this element of Claim 22 under TruePosition's Claim Constructions.

Dr. Goodman attempts to argue that the database is "obvious" in light of "equivalent" Home Location Registers (HLR's) and Visitor Location Registers (VLR's) defined for GSM networks. However, the "Location" specified in GSM networks of that period *necessarily* did *not* include the geolocation of the mobile unit, as is required under Andrew's or TruePosition's Claim Constructions.<sup>1</sup>

### 3.3.1.4 Detailed Opinions Relating to Kono and Claim 31 of the 144 Patent

A summary of my conclusions regarding the teachings of Kono to one having ordinary skill in the art at the time and the limitations in Claim 31 of the 144 Patent is set forth in Table 3-4 above. My opinions supporting these conclusions are provided below.

- Kono fails to disclose or teach a method for determining the location(s) of mobile cellular telephones by receiving reverse control channel signals at at least three cell sites.
- Kono fails to disclose or teach "processing said signals ... to produce frames of data comprising a prescribed number of *data bits*" and time stamp bits. Kono instead teaches processing *position location signals* to produce a data report comprised of (a) the base station transceiver zone that the mobile is residing in when the position location signal is transmitted, and (b) the absolute or relative time measurement representing the time at which the position location signal was received at the base transceiver station..
- Kono fails to disclose or teach identification of cellular telephones on the basis of *differences* in times of arrival among cell sites.
- Kono fails to disclose or teach "determining, on the basis of times of arrival differences, the locations of the cellular telephones."

My detailed opinions supporting these conclusions are provided below.

#### **Kono fails to disclose or teach a method for determining the location(s) of mobile cellular telephones by receiving reverse control channel signals at "at least three ... cell sites"**

Kono fails to disclose or teach a method for determining the location(s) of mobile cellular telephones by receiving *reverse control channel signals* at at least three geographically separated cell sites. My reasons for this opinion are given in the passage in Subsection 3.3.1.1 entitled "Kono fails to teach reception and provision of *reverse control channel* cellular telephone base-band signals".

Dr. Goodman only states a summary opinion in regard this Claim element, in a Table on pp. 18-19 of his report. The rows of this Table that are germane to this Claim element are shown below (highlighting mine):

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<sup>1</sup>While Dr. Goodman has expressed no opinion and provided no analysis of any alleged obviousness, I note that the database discussed in this Claim element of the 144 Patent meets multiple criteria for secondary considerations of nonobviousness in my expert opinion, if only due to the enormous, long-felt need for true geolocation of mobile telephones (e.g., as exemplified by the E-911 initiative conceived in the early 90's); and the commercial success that has flowed to TruePosition since its development of this technology.

Claim Language	Present in Kono	Kono Disclosure
31. A method for determine the location9s) of one or more cellular telephones	Yes	FIG. 1 shows a configuration of a moving body position locating apparatus
each initiating periodic signal transmissions over one of a prescribed set of reverse control channels, comprising the steps of:	Yes	"a moving body transmits position locating signals using shared channels,"
(a) receiving said reverse control channel signals at [sic] least three geographically separated cell sites;	Yes	"12a-12n are control channel transceivers that transmit and receive signals for the control channels allotted for each of the base stations 3a-3n."
...		

This Table is clearly erroneous. In this Table, Dr. Goodman first states (incorrectly, and again without explanation or support) that the position locating signals are transmitted over the reverse control channels. Dr. Goodman then recites a method comprising the steps of, receiving the *position locating signal* (i.e., the signal that Dr. Goodman incorrectly states is transmitted over the reverse control channel) using the *control channel transceivers*. This is clearly *not* what is taught in Kono.

**Kono fails to disclose or teach "processing said signals ... to produce frames of data comprising a prescribed number of data bits" and time stamp bits**

Kono fails to disclose or teach "processing said signals ... to produce frames of data comprising a prescribed number of *data bits*" and time stamp bits. Kono instead teaches processing of *position location signals* to produce of frames of data containing only time stamp bits.

As explained in the passage in Subsection 3.3.1.1 entitled "Kono fails to teach reception and provision of *reverse control channel* cellular telephone baseband signals," the position location signals are not reverse control channel signals.

As explained in the passages in Subsection 3.3.1.1 entitled "Kono fails to disclose or teach a sampling subsystem ... for sampling said baseband signal" and "Kono fails to disclose or teach "formatting the sample signal into frames of digital data", Kono fails to process the position location signals to produce a prescribed number of data bits.

Dr. Goodman's only opinion of this Claim element is stated row 5 of his Table starting on page 18, repeated below.

Claim Language	Present in Kono	Kono Disclosure
...		
(b) processing said signals at each cell site to produce frames of data, each frame comprising a prescribed number of data bits and time stamp bits, said time stamp bits representing the time at which said frames were produced at each cell site;	Yes	Kono teaches software and processors in hardware unit 55 that determine and format time of arrival information.  Time stamp bits: "The standard clock 54 is an ultra-high precision clock, and the time measurement circuit 53 measures the absolute time of the above-mentioned trigger, and reports it to the switching station 1 from the control circuit 55 via the control device 11a-11n.  Data bits: "It should be noted that the junction points 22a-22n are used for voice communication signals, and the junction points 23a-23n are used for data or control signals."
...		